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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/756,579	01/08/2001	John L. Reid	INTL-0463-US (P9817)	5624

21906 7590 03/28/2006

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EXAMINER	
BULLOCK JR, LEWIS ALEXANDER	

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No.	Applicant(s)	
	09/756,579	REID, JOHN L.	
	Examiner	Art Unit	
	Lewis A. Bullock, Jr.	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,2,4-10,12-18 and 20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2, 4-10,12-18 and 20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-10, 12-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Application Isolation in the Java Virtual Machine" by CZAJKOWSKI in view of AMAN (U.S. Patent 6,694,346)

As to claim 1, CZAJKOWSKI teaches a method comprising: running at least two applications (applications); enabling the applications to share a class (class having static variables); enabling each application to define an address space specific to each application (via each application having a copy of the static fields for the class); and duplicating member data (static fields of the class) for the class for each application (application) in an address space (table shared between the applications that contains the copies of Counter$sFields) (pg. 356, "Consider a class X, containing static fields...X$aMethods maintains an instance of X$sFields for each application; the methods of X$aMethods access the correct instance of X$sFields based on the application id extracted from the current thread...The second generated class is Counter$aMethods. It contains a table mapping application identifiers onto per-application copies of Counter$sFields...Each of them looks up the copy of Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of

Counter$sFields has not been generated yet and that the appropriate initialization has to be taken care of."; pg 363, "The runtime modifications operate as follows. At load time, each class is examined and each static field is replicated n times (n is the maximum allowed number of applications...Fetching an application id and using it to index an array of copies of a static field translates into less than ten machine instructions...When an application gets loaded into the modified KVM, it is assigned an application id or is rejected if no more application slots are available at the moment. Whenever a class is used by this application for the first time, the static initializer is run (when present), initializing the correct replicas of static fields."). However, CZAJKOWSKI does not teach the application defines the address space in a shared memory wherein the duplicated member data is in the address space of the application of shared memory.

AMAN teaches applications (applications) sharing (reusing) classes (classes) wherein each application creates an address space in shared memory for storing data related to a shared class (via the applications are resident in memory 18 and can allocate a region of memory 18 for use as a private heap wherein each application is associated with a private heap and can only be accessed by their applications) (col. 3, line 62 – col. 4, line 16). It would be obvious that the static fields of CZAJKOWSKI would be the data that is stored in a particular applications portion of shared memory. Therefore, it would be obvious to combine the teachings of CZAJKOWSKI with the teachings of AMAN in order to allow applications to reuse these classes without reloading, relinking, reverifying and recompiling the classes (col. 2, lines 45-47).

As to claim 2, CZAJKOWSKI teaches enabling each application to use a shared memory (via a table shared by the applications to access the correct Counter$sField copy) (pg. 356, "Consider a class X, containing static fields...X$aMethods maintains an instance of X$sFields for each application; the methods of X$aMethods access the correct instance of X$sFields based on the application id extracted from the current thread...The second generated class is Counter$aMethods. It contains a table mapping application identifiers onto per-application copies of Counter$sFields...Each of them looks up the copy of Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of Counter$sFields has not been generated ye and that the appropriate initialization has to be taken care of."; pg 363, "The runtime modifications operate as follows. At load time, each class is examined and each static field is replicated n times (n is the maximum allowed number of applications...Fetching an application id and using it to index an array of copies of a static field translates into less than ten machine instructions...When an application gets loaded into the modified KVM, it is assigned an application id or is rejected if no more application slots are available at the moment. Whenever a class is used by this application for the first time, the static initializer is run (when present), initializing the correct replicas of static fields.").

As to claim 4, CZAJKOWSKI teaches duplicating (copy) process specific data (static fields) for each application (application) (pg. 356, "Consider a class X, containing

static fields...X$aMethods maintains an instance of X$sFields for each application; the methods of X$aMethods access the correct instance of X$sFields based on the application id extracted from the current thread...The second generated class is Counter$aMethods. It contains a table mapping application identifiers onto per-application copies of Counter$sFields...Each of them looks up the copy of Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of Counter$sFields has not been generated ye and that the appropriate initialization has to be taken care of."; pg 363, "The runtime modifications operate as follows. At load time, each class is examined and each static field is replicated n times (n is the maximum allowed number of applications...Fetching an application id and using it to index an array of copies of a static field translates into less than ten machine instructions...When an application gets loaded into the modified KVM, it is assigned an application id or is rejected if no more application slots are available at the moment. Whenever a class is used by this application for the first time, the static initializer is run (when present), initializing the correct replicas of static fields.").

As to claim 5, CZAJKOWSKI teaches automatically (during run-time) duplicating (copy) process specific data (static fields) in address space specific to each application ((pg. 356, "Consider a class X, containing static fields...X$aMethods maintains an instance of X$sFields for each application; the methods of X$aMethods access the correct instance of X$sFields based on the application id extracted from the current

thread...The second generated class is Counter$aMethods. It contains a table mapping application identifiers onto per-application copies of Counter$sFields...Each of them looks up the copy of Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of Counter$sFields has not been generated ye and that the appropriate initialization has to be taken care of."; pg 363, "The runtime modifications operate as follows. At load time, each class is examined and each static field is replicated n times (n is the maximum allowed number of applications...Fetching an application id and using it to index an array of copies of a static field translates into less than ten machine instructions...When an application gets loaded into the modified KVM, it is assigned an application id or is rejected if no more application slots are available at the moment. Whenever a class is used by this application for the first time, the static initializer is run (when present), initializing the correct replicas of static fields.").

As to claim 6, CZAJKOWSKI teaches defining a shared class (Counter$aMethods) and using the share class to execute an instance of a class (Counter$sFields) to share (pg. 356, "Consider a class X, containing static fields...X$aMethods maintains an instance of X$sFields for each application; the methods of X$aMethods access the correct instance of X$sFields based on the application id extracted from the current thread...The second generated class is Counter$aMethods. It contains a table mapping application identifiers onto per-application copies of Counter$sFields...Each of them looks up the copy of

Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of Counter$sFields has not been generated ye and that the appropriate initialization has to be taken care of."; pg 363, "The runtime modifications operate as follows. At load time, each class is examined and each static field is replicated n times (n is the maximum allowed number of applications...Fetching an application id and using it to index an array of copies of a static field translates into less than ten machine instructions...When an application gets loaded into the modified KVM, it is assigned an application id or is rejected if no more application slots are available at the moment. Whenever a class is used by this application for the first time, the static initializer is run (when present), initializing the correct replicas of static fields.").

As to claim 7, CZAJKOWSKI teaches invoking a shareable interface (initializer function / Counter$aMethods functions) to obtain a handle (application id) (pg. 356, "The original class Counter, undergoes the following modifications. All static fields are removed from Counter. A new method, hidden$initializer(), is added. It contains a modified code of the static initializer of Counter. It is invoked whenever a new application uses static fields of Counter for the first time."; pg. 356, "In our particular case there is only one static field and thus Counter$aMethods has two such access methods: put$cnt() and get$cnt(). Each of them looks up the copy of Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of Counter$sFields has

not been generated yet and that the appropriate initialization has to be taken care of."; see also Figure 2, program code wherein int id – Thread.currentAppId(), wherein the identifier is retrieved from the application thread).

As to claim 8, CZAJKOWSKI teaches specifying the handle (application id) on each method call to resolve the context (static fields) of the handle (application id) (wherein the application id is used to retrieve the correct static fields for the shared class) (pg. 356, "Consider a class X, containing static fields...X$aMethods maintains an instance of X$sFields for each application; the methods of X$aMethods access the correct instance of X$sFields based on the application id extracted from the current thread...The second generated class is Counter$aMethods. It contains a table mapping application identifiers onto per-application copies of Counter$sFields...Each of them looks up the copy of Counter$sFields corresponding to the current application and then accesses the named field. If the lookup does not succeed it means that this application's copy of Counter$sFields has not been generated ye and that the appropriate initialization has to be taken care of."; pg 363, "The runtime modifications operate as follows. At load time, each class is examined and each static field is replicated n times (n is the maximum allowed number of applications...Fetching an application id and using it to index an array of copies of a static field translates into less than ten machine instructions...When an application gets loaded into the modified KVM, it is assigned an application id or is rejected if no more application slots are available at

the moment. Whenever a class is used by this application for the first time, the static initializer is run (when present), initializing the correct replicas of static fields.").

As to claims 9, 10 and 12-16, reference is made to an article comprising a medium that corresponds to the method of claims 1, 2 and 4-8 and is therefore met by the rejection of claims 1, 2 and 4-8 above. Claim 9 further details a processor-based system. CZAJKOWSKI teaches that the teachings are used on a PALM device that has a power of 2.7 MIPS at 16.6MHz processor clock and a heap (pg. 362). Therefore, it would be obvious that the teachings are executed on a processor-based system (PALM device).

As to claims 17, 18 and 20, reference is made to a system that corresponds to he method of claims 1, 2 and 4 and is therefore met by the rejection of claims 1, 2 and 4 above. Claim 17 further details the system having a processor and storage. CZAJKOWSKI teaches that the teachings are used on a PALM device that has a power of 2.7 MIPS at 16.6MHz processor clock and a heap (pg. 362). Therefore, it would be obvious that the teachings are executed on a processor-based system (PALM device).

Response to Arguments

3. Applicant's arguments with respect to claims 1, 2, 4-10, 12-18 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lewis A. Bullock, Jr. whose telephone number is (571) 272-3759. The examiner can normally be reached on Monday-Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER

March 20, 2006